CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/W.No.14/KRIDL/BC/Bitumen/2016-17 18.01.2017

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to 1st Main, 6th A Cross and other cross roads at Manjunatha Nagar in Bagalagunte in Ward No.14, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/DZ/AEE/TDSD/PR/468/2016-17 Dated: 22.12.2016
* Sample ID	:	Roads at Mannjunatha Nagara, Bagalagunte Ward No.14
Technical Reference	:	IRC:SP:11-1984
Date of Testing	:	18.01.2017

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	27.00
7. Bitumen content in %	5.20	5.40
8. Average	5.30	

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage. 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/W.No.14/KRIDL/BC/Bitumen/2016-17 18.01.2017

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency : **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work : Improvements to 1st Main, 6th A Cross and other cross roads at Manjunatha Nagar in Bagalagunte in Ward No.14, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Reference : BBMP/DZ/AEE/TDSD/PR/468/2016-17 Dated: 22.12.2016
* Sample ID : Roads at Mannjunatha Nagara, Bagalagunte Ward No.14
Technical Reference : IS 2386 and IRC:SP:11-1984
Date of Testing : 18.01.2017

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.39	9.58	9.58	90.42	79-100
9.5	36.35	7.67	17.24	82.76	70-88
4.75	71.12	15.00	32.25	67.75	53-71
2.36	69.32	14.62	46.87	53.13	42-58
1.18	51.23	10.81	57.68	42.32	34-48
0.6	53.15	11.21	68.89	31.11	26-38
0.3	45.15	9.53	78.42	21.58	18-28
0.15	38.25	8.07	86.49	13.51	12-20
0.075	38.25	8.07	94.56	5.44	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	32.26	6.82	6.82	93.18	79-100
9.5	44.36	9.38	16.20	83.80	70-88
4.75	69.25	14.64	30.84	69.16	53-71
2.36	70.21	14.84	45.68	54.32	42-58
1.18	60.23	12.73	58.42	41.58	34-48
0.6	55.28	11.69	70.10	29.90	26-38
0.3	34.15	7.22	77.32	22.68	18-28
0.15	30.22	6.39	83.71	16.29	12-20
0.075	40.23	8.51	92.22	7.78	4-10

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants Bangalore Engineers

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.14/KRIDL/BC/Agg/2016-17 18.01.2017

TEST REPORT ON GRADATION OF AGGREGATE

* Customer : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency : **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work : Improvements to 1st Main, 6th A Cross and other cross roads at Manjunatha Nagar in Bagalagunte in Ward No.14, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Reference : BBMP/DZ/AEE/TDSD/PR/468/2016-17 Dated: 22.12.2016
* Sample ID : Bituminous Concrete
Technical Reference : IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix : Hot mix plant, Bangalore
Date of Testing : 18.01.2017

Total Weight of Sample: **5200** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-18
13.2	775	14.90	14.90	85.10	79 - 100	
9.5	525	10.10	25.00	75.00	70 - 88	
4.75	625	12.02	37.02	62.98	53 - 71	
2.36	540	10.38	47.40	52.60	42 - 58	
1.18	530	10.19	57.60	42.40	34 - 48	
0.600	545	10.48	68.08	31.92	26 - 38	
0.300	595	11.44	79.52	20.48	18 - 28	
0.150	365	7.02	86.54	13.46	12 - 20	
0.075	345	6.63	93.17	6.83	4 - 10	

Total Weight of Sample: **5300** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	630	11.89	11.89	88.11	79 - 100	
9.5	520	9.81	21.70	78.30	70 - 88	
4.75	635	11.98	33.68	66.32	53 - 71	
2.36	575	10.85	44.53	55.47	42 - 58	
1.18	625	11.79	56.32	43.68	34 - 48	
0.600	520	9.81	66.13	33.87	26 - 38	
0.300	555	10.47	76.60	23.40	18 - 28	
0.150	395	7.45	84.06	15.94	12 - 20	
0.075	440	8.30	92.36	7.64	4 - 10	

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathinagar, Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.14/KRIDL /BC/Stability/2016-17 18.01.2017

TEST REPORT ON MARSHALL STABILITY OF MIX

* Customer	:	**Asst. Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
*Name of the Work	:	Improvements to 1st Main, 6th A Cross and other cross roads at Manjunatha Nagar in Bagalagunte in Ward No.14, T. Dasarahalli Sub Division, BBMP, Bangalore.
*Reference	:	BBMP/DZ/AEE/TDSD/PR/468/2016-17 Dated: 22.12.2016
* Source	:	Hot mix Plant, Bangalore
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.01.2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability, Kn	9.60	9.65	9 Kn (min)
2	Marshall flow, mm	2.95	3.05	2 – 4
3	Percent air voids in Mineral Aggregate	3.30	3.60	3 – 6
4	Voids in Compacted Mix	13.25	13.90	13 - 15
5	Percent Voids filled with Bitumen	66.40	67.20	65 - 75
6	Density, g/cc	2.25	2.26	--

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಟಿ.ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬೆಂಗಳೂರು, ಬಿಬಿಎಂಪಿ
ಬೆಂಗಳೂರು

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.14/KRIDL /BC/Stability/2016-17 18.01.2017

TEST REPORT ON MARSHALL STABILITY OF MIX

* Customer	:	**Asst. Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
*Name of the Work	:	Improvements to 1st Main, 6th A Cross and other cross roads at Manjunatha Nagar in Bagalagunte in Ward No.14, T. Dasarahalli Sub Division, BBMP, Bangalore.
*Reference	:	BBMP/DZ/AEE/TDSD/PR/468/2016-17 Dated: 22.12.2016
* Source	:	Hot mix Plant, Bangalore
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.01.2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability, Kn	9.60	9.65	9 Kn (min)
2	Marshall flow, mm	2.95	3.05	2 – 4
3	Percent air voids in Mineral Aggregate	3.30	3.60	3 – 6
4	Voids in Compacted Mix	13.25	13.90	13 - 15
5	Percent Voids filled with Bitumen	66.40	67.20	65 - 75
6	Density, g/cc	2.25	2.26	--

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಟಿ.ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬೆಂಗಳೂರು, ಬಿಬಿಎಂಪಿ
ಬೆಂಗಳೂರು

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.